AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. Contract Number	Page of Pages
	1 of 50

2. Amendment/Modification Number	3. Effective Date	4. Requisition/Purchase Request No.	5. Solicitation Caption
DCAM-2007-B-0007-004	1-Feb-07		Renovate Bldg. 52 at UDC

6. Issued By: Code 03B
Office of Contracting and Procurement
Construction, Design and Building Renovation Commodity Group
441 4th Street N.W., Suite 700 South
Washington, D.C. 20001

7. Administered By (If other than line 6)
Office of Contracting and Procurement
2000 14th Street, N.W., 3rd Floor
Washington, D.C. 20009

8. Name and Address of Contractor (No. Street, city, country, state and ZIP Code)

Code | Facility

(X)	
	9A. Amendment of Solicitation No. DCAM-2007-B-0007
	9B. Dated (See Item 11) 4-Dec-06
	10A. Modification of Contract/Order No.
	10B. Dated (See Item 13)

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[ ] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offers [x] is extended. [ ] is not extended.
Offers must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended, by one of the following methods: (a) By completing Items 8 and 15, and returning 2 copy of the amendment: (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or fax which includes a reference to the solicitation and amendment number. FAILURE OF YOUR ACKNOWLEDGEMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by letter or fax, provided each letter or telegram makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. Accounting and Appropriation Data (If Required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS, IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14

(X)	A. This change order is issued pursuant to: (Specify Authority) The changes set forth in Item 14 are made in the contract/order no. in item 10A.
	B. The above numbered contract/order is modified to reflect the administrative changes (such as changes in paying office, appropriation data, etc.) set forth in item 14, pursuant to the authority of 27 DCMR, Chapter 36, Section 3601.2.
	C. This supplemental agreement is entered into pursuant to authority of:
	D. Other (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [x] is required to sign this document and return 2 copy to the issuing office.

14. Description of amendment/modification (Organized by UCF Section headings, including solicitation/contract subject matter where feasible.)

Attachment #1 - Response to request for clarifications
Attachment #2 - Additional specifications

The opening date for receipt of bids is hereby being changed from February 8, 2007 and is hereby extended to February 15, 2007. The time and place remains the same.

Except as provided herein, all terms and conditions of the document referenced in Item (9A or 10A) remain unchanged and in full force and effect

15A. Name and Title of Signer (Type or print)		16A. Name of Contracting Officer **Diane Wooden**	
15B. Name of Contractor (Signature of person authorized to sign)	15C. Date Signed	16B. District of Columbia Diane Wooden (Signature of Contracting Officer)	16C. Date Signed 2/1/07

Attachment #1

SORG AND ASSOCIATES, P.C.

ARCHITECTS

ADDENDUM

The following specification sections shall be added to the project:

Section 04902 Granite Cleaning
Section 06420 Plastic Laminate Clad Paneling
Section 07629 Stainless Steel Panels
Section 07811 Sprayed Fire Resistive Materials
Section 09841 Acoustical Wall Panels

For bid purposes, Acoustic Wall Panels to be located on the longest wall of the room as scheduled, height to be from 1" above base to 1" below ceiling. Actual wall location to be determined by Owner based on furniture layout.

The following specification sections shall be revised as indicated therein:
Section 08800 Glazing – Glass type 7 added for lobby wall condition.

SORG AND ASSOCIATES, P.C. 2000 S STREET, NW WASHINGTON DC 20009 TEL: 202.393.6445 FAX: 202.393.6497

Re: UDC – Building 52

The following is our response to FEI Construction Company's Request for Clarification #1 dated 12/19/06.

1. Specification sections will be provided for stainless steel cladding, spray on fire resistant coating, entrance mat, and acoustical wall panel. The stainless steel base is simply 16 gage sheet material with a brushed #4 finish adhered to the wall. The sealed concrete is specified on page 3 of specification section 03301.
2. Divisions 6 and 12 are in the scope of the project so it should be a line item on the Price Breakdown form. Owner to address.
3. The legends indicate shaded walls are existing to remain. Existing walls with partition tags are correct – these indicate that work is to be done to existing partitions, such as adding a layer of gypsum board. See partition types 8 & 9 for clarification of new & existing partition work.
4. Key note 12 on A401 should read 2 hour spray on fire resistant coating, not 3 hour.
5. The frosted glass is a manufactured product by a company called Architype in Pennsylvania (Rep's # 717 600-9394). The product is # 005C-1145 which is a laminated safety glass simply adhered to the wall with Mirror Mastic. The frosted effect is achieved with the PVB interlayer within the glass. This will be added to the specs.
6. Manufacturer of existing raised floor system is unknown. GC will have to verify during construction.
7. Utilities are existing and should be available for the contractor to use. Agreements for use of existing utilities during construction must be determined by the Owner. There are no upgrades of water, sewer, gas and electrical service required. There is some gas service work required within the building noted in the drawings.
8. Minimum scope of Special Inspections required by code is shown on drawing S100. Some of this scope is provided by the Structural engineer as noted on the schedule. Owner to determine if additional scope of testing and inspection is required and if all will be provided by the Owner or as part of the construction contract.
9. These laminate panels are currently in the scope. The laminate selection is Formica (or equal) HGS Grade 10, general purpose grade to be selected from the full line of wood grains with matte or other standard finish. The reveals are 1" wide or as noted, ½" deep with a brushed stainless steel material (Formica #2178 or equal) at the back surface of the reveal. The surface laminate returns onto the top and bottom surface of the reveal. Info

will be added to the Woodwork spec section to cover materials and the reveal.

10. Most, if not all conditions are painted drywall partitions however contractor will have to verify after demolition occurs.

11. Confirmed, demolish portions of raised access floor system for new and modified partitions only.

12. The limits of the raised floor system on Sheet D101 are as follows:

    Beginning at grid C on the north side of the building heading southward to the center of corridor XB50, turning east to the east side of (in line with) corridor XB02, turning southward to just before column grid 4, then heading east in line with the north face of column B4 to the east exterior wall.

13. I assume the question refers to classroom #058, not #038. Delete two note #4s pointing at the north wall of room 058. The remaining note #4 at the south wall of room 058 is for a new partition similar to Type 1, sitting on top of the raised floor system, extending to the deck above. This one partition does not need to extend below the raised floor system.

14. This is simply a painted steel electrical j-box cover plate.

15. Drawings will be changed to note that the existing granite panels are to be cleaned only.

16. Both stones S-1 and S-2 are used at the elevator lobbies. See drawings A606, A607 and A608 for stone pattern.

17. The Material Legend on sheet A603 should be changed to read VCT-1, VCT-2 and VCT-3 instead of VCT-3-1, VCT-3-2 and VCT-3-3.

18. The Material Legend on sheet A603 should be changed to read ACT-1 and ACT-2 instead of ACT-1-1 and ACT-1-2.

19. This is just a standard note on the Structural drawings. There is no spray on fireproofing for the underside of steel decks in this project.

20. The extent of the raised floor on drawing DM101 is only schematic (general area). The extent shown on D101 is accurate.

21. Owner to determine the scope of moving, removing and storing and replacing of existing furniture, furnishings, etc.

22. No additional power is required and therefore no class of service has been applied for with PEPCO.

23. Items a through e and g must be verified by Owner. For item f, refer to notes 2A through 2D on Structural drawing S100.

The following is our response to Compel Construction Inc.' s Request for Clarifications (fax) dated 1/15/07.

1. The reference to UL design number NER-258 for a horizontal shaftwall system is incorrect. The reference is not a UL designation. It is a code approved report number (NER-258). The system has been tested for fire and is approved for use throughout the United States. The fire test number is WHI 495-PSH-0154/0167. Manufacturer' s of shaftwall systems will have information on approved horizontal applications of their product. It is generally no different than vertical shaftwall assemblies except it will require suspension or bracing when exceeding its span capabilities.

SECTION 04902 – GRANITE CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:
   1. Cleaning granite surfaces.

1.3 DEFINITIONS

A. Low-Pressure Spray: 100 to 400 psi; 4 to 6 gpm.

1.4 SUBMITTALS

A. Product Data: For each product indicated. Include recommendations for application and use. Include test reports and certifications substantiating that products comply with requirements.

B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

C. Cleaning program indicating cleaning process, including protection of surrounding materials on building and Project site, and control of runoff during operations. Describe in detail the materials, methods, and equipment to be used.

   1. If materials and methods other than those indicated are proposed for cleaning work, provide a written description, including evidence of successful use on other comparable projects, and a testing program to demonstrate their effectiveness for this Project.

1.5 QUALITY ASSURANCE

A. Restoration Specialist: Engage an experienced stone restoration and cleaning firm that has completed work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1. Field Supervision: Require restoration specialist firms to maintain an experienced full-time supervisor on the Project site during times that stone restoration and cleaning are in progress.

B. Mockup: Prepare test sample for cleaning procedures to demonstrate aesthetic effects and qualities of materials and execution. Use materials and methods proposed for completed Work.

1. Locate mockup on the building where directed by Architect.
2. Cleaning: Prepare sample approximately 25 sq. ft. in area for each type of stone and surface condition.

    a. Test cleaners and methods on samples of adjacent materials for possible adverse reactions, unless cleaners and methods are known to have a deleterious effect.
    b. Allow a waiting period of not less than 7 days after completion of sample cleaning to permit a study of sample panels for negative reactions.

3. Notify Architect 7 days in advance of the dates and times when samples will be prepared.
4. Obtain Architect's approval of mockup before starting the remainder of cleaning.
5. Maintain mockup during construction in an undisturbed condition as a standard for judging the completed Work.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. Nonacidic Gel Cleaner:

    a. Sure Klean 942 Masonry Cleaner; ProSoCo, Inc.

2. Mild Acidic Cleaner:

    a. DR-60 Stone and Masonry Cleaner; Dominion Restoration, Inc.
    b. Sure Klean Light-Duty Restoration Cleaner; ProSoCo, Inc.

3. Alkaline Paint Remover:

    a. Diedrich 404/606/606X Paint Remover; Diedrich Technologies, Inc.
    b. Hydroclean Heavy Duty Paint Remover (HT-716); Hydrochemical Techniques, Inc.
    c. Enviro Strip #1; ProSoCo, Inc.
    d. Enviro Strip #2; ProSoCo, Inc.
    e. 1217 Poultice/Paint Stripper; ProSoCo, Inc.
    f. Sure Klean Heavy-Duty Paint Stripper; ProSoCo, Inc.

4. Liquid Strippable Masking Agent:

   a. Diedrich Acid Guard; Diedrich Technologies, Inc.
   b. Sure Klean Acid Stop; ProSoCo, Inc.

2.2 CLEANING MATERIALS

A. Water for Cleaning: Potable.

B. Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups of tetrasodium polyphosphate (TSPP), 1/2 cup of laundry detergent, 5 quarts of 5 percent sodium hypochlorite (bleach), and 15 quarts of warm water for each 5 gal. of solution required.

C. Nonacidic Gel Cleaner: Manufacturer's standard nonacidic gel containing detergents and chelating agents and specifically formulated for cleaning stone surfaces. Cleaner shall have a pH between 6 and 9 and shall not be considered a hazardous waste according to 40 CFR 261.

D. Nonacidic Liquid Cleaner: Manufacturer's standard mildly alkaline liquid cleaner formulated for removing mold, mildew, and other organic soiling from ordinary building materials, including polished stone, brick, aluminum, plastics, and wood.

E. Mild Acidic Cleaner: Manufacturer's standard mildly acidic cleaner containing no hydrochloric, hydrofluoric, or sulfuric acid; chlorine bleaches; or caustic soda.

F. Alkaline Paint Remover: Manufacturer's standard alkaline paste formulation for removing paint coatings from masonry. (requires a neutralizing afterwash)

G. Liquid Strippable Masking Agent: Manufacturer's standard liquid, film-forming, strippable masking material for protecting glass, metal, and polished stone surfaces from the damaging effects of acidic and alkaline masonry cleaners. (will not protect against paint removers)

2.3 CHEMICAL CLEANING SOLUTIONS

A. Dilute chemical cleaners with water to produce solutions of concentration recommended by chemical cleaner manufacturer, unless otherwise indicated.

B. Acidic Cleaner for Polished Granite : Dilute with water to a concentration demonstrated by testing that does not etch or otherwise damage the polished surface, but not greater than that recommended by chemical cleaner manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Comply with chemical cleaner manufacturer's written instructions for protecting building surfaces against damage from exposure to their products.

B. Protect persons and surrounding surfaces of building being restored from injury resulting from stone restoration work.
   1. Neutralize and collect alkaline and acid wastes for disposal off Owner's property.
   2. Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, undermining of paving and foundations, damage to landscaping, and water penetration into building interiors.
   3. Erect temporary protection covers over pedestrian walkways and at points of entrance and exit for persons that must remain in operation during course of stone restoration work.

C. Protect adjacent surfaces from contact with chemical cleaners by covering them with a liquid strippable masking agent or polyethylene film and waterproof masking tape. Apply masking agent to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces.

3.2 CLEANING STONE, GENERAL

A. Proceed with cleaning in an orderly manner; work from top to bottom of each panel width and from one end of each elevation to the other.

B. Use only those cleaning methods indicated for each stone material and location.

   1. Use natural-fiber brushes only.
   2. Use spray equipment that provides controlled application at volume and pressure indicated, measured at spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage stonework.

      a. Equip units with pressure gages.

   3. For chemical cleaner spray application, use a low-pressure tank or chemical pump suitable for chemical cleaner indicated, equipped with a cone-shaped spray tip.
   4. For water spray application, use a fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.

C. Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including corners, moldings, and interstices, and that produces an even effect without streaking or damaging stone surfaces.

D. Water Application Methods: Where water application methods are indicated, comply with the following:
   1. Spray Applications: Spray apply water to stone surfaces to comply with requirements indicated for location, purpose, water temperature, pressure, volume, and equipment. Unless otherwise indicated, hold spray nozzle at least 6 inches from surface of stone and

apply water from side to side in overlapping bands to produce uniform coverage and an even effect.

E. Chemical Cleaner Application Methods: Apply chemical cleaners to stone surfaces to comply with chemical cleaner manufacturer's written instructions; use brush or spray application methods, at Contractor's option, unless otherwise indicated. Do not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.

1. Spray Application: Apply chemical cleaners at pressures not exceeding 50 psi, unless otherwise indicated.
2. Reapplying Chemical Cleaners: Do not apply chemical cleaners to same stone surfaces more than twice. If additional cleaning is required, use a steam wash.

F. Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage.

3.3 CLEANING STONEWORK

A. Detergent Cleaning: Clean stonework with a detergent solution applied as follows:

1. Wet stone with cold water applied by low-pressure spray.
2. Scrub stonework with detergent solution using medium-soft brushes until soil is thoroughly dislodged and can be removed by rinsing. Use small brushes to remove soil from mortar joints and crevices. Dip brush in solution often to ensure that adequate fresh detergent is used and that stone surface remains wet.
3. Rinse with cold water to remove detergent solution and soil.
   a. Apply rinse by medium-pressure spray.

B. Mild Acidic Chemical Cleaning: Clean stone with a mild acidic cleaner applied as follows:

1. Wet stone with cold water applied by low-pressure spray.
2. Apply cleaner to stone. Let cleaner remain on surface for period indicated below:

   a. As recommended by chemical cleaner manufacturer.

3. Rinse with cold water to remove chemicals and soil.

   a. Apply rinse by low-pressure spray.

4. Repeat cleaning procedure above where required to produce the cleaning effect established by mockup. Do not apply more than twice.

C. Paint Removal with Alkaline Paint Remover: Remove paint from stonework as follows:

1. Apply paint remover to dry, painted stonework with brushes.
2. Allow paint remover to remain on surface for period recommended by manufacturer.
3. Rinse with cold water to remove chemicals and paint residue.

a. Apply rinse by low-pressure spray.

4. Apply an acidic cleaner to stonework, while surface is still wet, using low-pressure spray equipment or a soft-fiber brush. Let cleaner remain on surface for period recommended by chemical cleaner manufacturer, unless otherwise indicated.
5. Rinse with cold water to remove chemicals and soil.

a. Apply rinse by low-pressure spray.

END OF SECTION 04902

SECTION 06420 – PLASTIC LAMINATE CLAD PANELING

PART 4 - GENERAL

4.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work of this Section.

4.2 SUMMARY

A. This Section includes plastic-laminate-clad flush paneling with reveals.

4.3 DEFINITIONS

A. Paneling includes wood furring, blocking, and shims for installing paneling, unless concealed within other construction before paneling installation.

4.4 SUBMITTALS

A. Product Data: For high-pressure decorative laminate**,** adhesives, fire-retardant-treated materials, and finishing materials and processes.

1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: Show location of paneling, large-scale details, attachment devices, and other components. Include dimensioned plans and elevations.

1. Show details full size.
2. Show locations and sizes of furring and blocking, including concealed blocking specified in other Sections.

C. Samples for Initial Selection: Manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available for each type of material indicated.
1. High-pressure decorative laminates.

D. Samples for Verification: For the following:
1. Plastic-laminate-clad panel products, 8 by 10 inches (200 by 250 mm), for each type, color, pattern, and surface finish

E. Product Certificates: Signed by manufacturers of paneling certifying that products furnished comply with requirements.

F. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

4.5 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed paneling similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Fabricator Qualifications: A firm experienced in producing paneling similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production and installation of paneling.

D. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of paneling, construction, finishes, and other requirements.

1. Provide AWI certification labels or compliance certificate indicating that paneling complies with requirements of grades specified.

E. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

F. Mockups: Before fabricating and installing paneling, build mockups for each form of construction and finish required to verify selections made under sample Submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups in the location and of the size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be fabricated and installed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting paneling fabrication.

5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
6. Demolish and remove mockups when directed.
7. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

4.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver paneling until painting and similar operations that could damage paneling have been completed in installation areas. If paneling must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

4.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install paneling until building is enclosed, wet work is complete, and HVAC system is operating and will maintain temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

B. Field Measurements: Where paneling is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support paneling by field measurements before being enclosed and indicate measurements on Shop Drawings.

4.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that paneling can be installed as indicated.

PART 5 - PRODUCTS

5.1 MATERIALS

A. General: Provide materials that comply with requirements of the AWI quality standard for quality grade specified, unless otherwise indicated.

B. Wood Products: Comply with the following:

1. Hardboard: AHA A135.4.
2. Medium-Density Fiberboard: ANSI A208.2, Grade MD.

3. Particleboard: ANSI A208.1, Grade M-2.
4. Softwood Plywood: DOC PS 1, Medium Density Overlay.

C. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated, or if not indicated, as required by woodwork quality standard.

1. Manufacturer: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:

a. Formica Corporation.
b. Laminart.
c. Wilsonart International; Div. of Premark International, Inc.

5.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where indicated, use materials impregnated with fire-retardant chemical formulations indicated by a pressure process or other means acceptable to authorities having jurisdiction to produce products with fire-test-response characteristics specified.

1. Do not use treated material that does not comply with requirements of referenced woodworking standard or that is warped, discolored, or otherwise defective.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Comply with AWPA C20 (lumber) and AWPA C27 (plywood), for woodwork items indicated as fire-retardant treated. Use the following treatment type:
1. Interior Type A: Low-hygroscopic formulation.
2. Mill lumber after treatment, within limits set for wood removal that does not affect listed fire-test-response characteristics, using a woodworking plant certified by testing and inspecting agency.
3. Kiln-dry material before and after treatment to levels required for untreated material.

C. Fire-Retardant-Treated Lumber and Plywood by Nonpressure Process: Apply nontoxic, water-soluble, fire-retardant treatment by dip, spray, roller, curtain coating, vacuum chamber, or soaking to achieve flame-spread rating of 25 or less and smoke-developed rating of 450 or less per ASTM E 84.

5.3 INSTALLATION MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Fire-retardant-treated softwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

5.4 FABRICATION, GENERAL

A. Paneling Grade: Provide Custom grade paneling complying with the referenced quality standard.

B. Complete fabrication, including assembly, to maximum extent possible, before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

C. Shop cut openings, to maximum extent possible, to receive hardware, appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

5.5 PLASTIC-LAMINATE-CLAD FLUSH PANELING

A. Quality Standard: Comply with AWI Section 500.

B. Grade: Custom.

C. Plastic-Laminate Cladding: High-pressure decorative laminate, types as follows:

1. Faces: Type HGS.
2. Exposed Edges: Same as faces.

D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed surfaces complying with the following requirements:

1. Match Architect's samples.

E. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

F. Panel Core Construction: Fire-retardant particleboard or fire-retardant medium-density fiberboard.

G. Fire-Retardant-Treated Paneling: Provide panels consisting of fire-retardant plastic laminate and fire-retardant particleboard or fire-retardant medium-density fiberboard. Panels shall have a flame-spread rating of 25 or less and a smoke-developed rating of 450 or less per ASTM E 84.

H. Provide paneling of thickness shown or, if not shown, 3/4-inch minimum thickness. Assemble by gluing and concealed fastening.

1. Panels will have 1 inch, or as noted, wide and ½ inch deep reveals

2. Back surface of the reveal is to be clad with “brushed stainless steel” finish plastic laminate. (Formica #2178, or approved equal)

PART 6 - EXECUTION

6.1 PREPARATION

A. Condition paneling to average prevailing humidity conditions in installation areas before installation.

B. Before installing paneling, examine shop-fabricated work for completion and complete work as required, including removal of packing.

6.2 INSTALLATION

A. Install paneling level, plumb, true, and straight with no distortions. Shim as required with concealed shims. Install level and plumb to a tolerance of 1/8 inch in 96 inches. Install with no more than 1/16 inch in 96-inch vertical cup or bow and 1/8 inch in 96-inch horizontal variation from a true plane.

1. For flush paneling with revealed joints, install with variations in reveal width, alignment of top and bottom edges, and flushness between adjacent panels not exceeding 1/32 inch.

B. Anchor paneling to supporting substrate with concealed panel-hanger clips. Do not use face fastening unless covered by trim.

6.3 ADJUSTING AND CLEANING

A. Repair damaged and defective paneling, where possible, to eliminate functional and visual defects; where not possible to repair, replace paneling. Adjust for uniform appearance.

END OF SECTION 06420

SECTION 07629 – STAINLESS STEEL PANELS

PART 7 - GENERAL

7.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

7.2 SUMMARY

A. This Section includes interior stainless steel wall panels and wall base.

7.3 SUBMITTALS

A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.

B. Product Data including manufacturer's material and finish data, installation instructions, and general recommendations for each specified material.

C. Shop Drawings of panels showing layout, profiles, methods of joining, and anchorage details.

D. Samples of sheet metal trim, and accessory items, in the specified finish.

1. 8-inch- square Samples of specified stainless steel sheet materials to be exposed as finished surfaces.

E. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

7.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced Installer who has completed sheet metal trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

B. Mockups: Prior to installing stainless steel panels, construct mockups indicated to verify selections made under Sample submittals and to demonstrate aesthetic effects as well as qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for final unit of Work.

1. Locate mockup on-site in the location and of the size, as directed by Architect.
2. Notify Architect one week in advance of the dates and times when mockup will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Construct mockup for the following type of sheet metal:

    a. Stainless steel panels.

5. Obtain Architect's approval of mockup before start of final unit of Work.
6. Retain and maintain mockup during construction in an undisturbed condition as a standard for judging the completed Work.
    a. Approved mockup in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

7.5 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible durability of Work, and protection of materials and finishes.

PART 8 - PRODUCTS

8.1 METALS

A. Stainless-Steel Sheet: ASTM A 167, Type 304, soft annealed, with No. 4 finish, except where harder temper is required for forming or performance.

8.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Stainless-Steel Welding Rods: Type recommended by stainless-steel sheet manufacturer for type of metal sheets furnished.

B. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.

C. Adhesive: Two-part epoxy adhesive suitable for bonding metals and cementitious materials.

1. Devcon Permatex Epoxy Plus 25 or approved equal.

8.3 FABRICATION, GENERAL

A. Sheet Metal Fabrication Standard: Fabricate stainless steel panels to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

B. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

C. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

D. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

E. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

8.4 SHEET METAL FABRICATIONS

A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.

B. Stainless steel panels: Fabricate from the following material:
1. Stainless Steel: 0.0250 inch thick.

C. Stainless steel wall base: Fabricate from the following material:
1. Stainless Steel: 16 gauge.

PART 9 - EXECUTION

9.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

9.2 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form

hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

D. Underlayment: Where installing stainless steel directly on cementitious or wood substrates, install a slip sheet of red-rosin paper and a course of polyethylene underlayment. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

1. Underlayment: Where installing stainless steel directly on cementitious or wood substrates, install a slip sheet of red-rosin paper and a course of polyethylene underlayment.

E. Stainless Steel Base: Apply stainless steel wall base to walls where indicated.

1. Install wall base in lengths as long as practicable without gaps at seams and with tops of adjacent pieces aligned.

2. Abrade and roughen surfaces before applying epoxy adhesive.

3. Tightly adhere wall base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

4. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient wall base with manufacturer's recommended adhesive filler material.

5. Install prefabricated outside corners before installing straight pieces.

6. Form inside corners on job, from straight pieces of maximum lengths possible,butted at the point where corner is formed.

9.3 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

END OF SECTION 07629

SECTION 07811 - SPRAYED FIRE-RESISTIVE MATERIALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work of this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Sprayed fire-resistive materials.

1.3 SUBMITTALS

A. Product Data: For each fire-resistive product specified.

B. Shop Drawings: Structural framing plans indicating the following:

1. Locations and types of surface preparations required before applying sprayed fire-resistive material.
2. Extent of sprayed fire-resistive material for each construction and fire-resistance rating, including the following:

a. Applicable fire-resistive design designations of a qualified testing and inspecting agency acceptable to authorities having jurisdiction.
b. Minimum thickness needed to achieve required fire-resistance ratings of structural components and assemblies.

3. Treatment of sprayed fire-resistive material after application.

C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors and glosses available.

D. Samples for Verification: Of each type of exposed finish required, prepared on 2 Samples, each 4 inches square, of each color, gloss, texture and material formulation to be applied. Where finishes involve normal color and texture variations, include Sample sets showing the full range of variations expected.

E. Product Certificates: Signed by manufacturer of sprayed fire-resistive material certifying that the products furnished comply with requirements.

F. Installer Certificates: Signed by manufacturer certifying that installers comply with specified requirements.

G. Compatibility and Adhesion Test Reports: For primers and other coatings applied to structural steel. Provide reports from a qualified independent testing and inspecting agency engaged by Contractor. Confirm that primers and coatings proposed for application in shop or field are compatible with fire-resistive material. Instruct laboratory to determine compatibility according to requirements specified in "Quality Assurance" Article.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experienced installer certified, licensed, or otherwise qualified by sprayed fire-resistive material manufacturer as having the necessary experience, staff, and training to install manufacturer's products according to specified requirements. A manufacturer's willingness to sell its sprayed fire-resistive materials to Contractor or to an installer engaged by Contractor does not in itself confer qualification on the buyer.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the District of Columbia and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of sprayed fire-resistive materials that are similar to those indicated for this Project in material, design, and extent.

C. Testing of Fire-Resistive Materials: By a qualified testing and inspecting agency engaged by Contractor or manufacturer according to the following requirements:

1. Sprayed fire-resistive materials are randomly selected for testing from bags bearing the applicable classification marking of UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
2. Testing is performed on specimens of sprayed fire-resistive materials that comply with laboratory testing requirements specified in Part 2 and are otherwise identical to installed fire-resistive materials, including application of accelerant, sealers, topcoats, tamping, troweling, rolling, and water overspray, if any of these are used in final application.

D. Testing for Compatibility and Adhesion: Engage a qualified testing and inspecting agency to prepare compatibility and adhesion test reports required in "Submittals" Article based on testing that complies with the following requirements:

1. Testing for bond per ASTM E 736 and requirements specified in UL's "Fire Resistance Directory" about coating materials.
2. Verify that manufacturer of fire-resistive material has not found primers or coatings to be incompatible with fire-resistive material based on its own laboratory testing or field experience.

E. Source Limitations: Obtain each type of sprayed fire-resistive material from one source and by a single manufacturer.

F. Fire-Test-Response Characteristics: Provide sprayed fire-resistive materials and assemblies identical to those tested for the following fire-test-response characteristics per test method indicated below by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify packages (bags) containing sprayed fire-resistive material with appropriate markings of applicable testing and inspecting agency.

1. Fire-Resistance Ratings: As indicated by reference to fire-resistive designs listed in UL's "Fire Resistance Directory," or in the comparable publication of another testing and inspecting agency acceptable to authorities having jurisdiction, for sprayed fire-resistive material serving as direct-applied protection, tested per ASTM E 119.
2. Surface-Burning Characteristics: As indicated for each sprayed fire-resistive product required, tested per ASTM E 84.

G. Mockups: Before installing sprayed fire-resistive material, apply products specified to demonstrate aesthetic effects, where applicable, and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for completed Work:

1. Locate mockups in the location indicated or, if not indicated, as directed by Architect.
2. Extent of Mockups: Approximately 10 sq. ft. of surface for each product indicated.
3. Notify Architect 7 days in advance of the dates and times when mockups will be constructed.
4. Demonstrate the proposed range of aesthetic effects and workmanship, including patching.
5. Obtain Architect's approval of mockups before starting application of product.
6. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

    a. When directed, demolish and remove mockups from Project site.
    b. Approved mockups in an undisturbed condition at the time of Substantial Completion may become part of the completed Work.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to Project site in original, unopened packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; shelf life, if applicable; and fire-resistance ratings applicable to Project.

B. Use materials with limited shelf life within period indicated. Remove from Project site and discard materials whose shelf life has expired.

C. Store materials inside, under cover, aboveground, so they are kept dry until ready for use. Remove from Project site and discard materials that have deteriorated.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not apply sprayed fire-resistive material when ambient or substrate temperatures are 40 deg F or lower, unless temporary protection and heat is provided to maintain temperatures at or above this level for 24 hours before, during, and for 24 hours after product application.

B. Ventilation: Ventilate building spaces during and after application of sprayed fire-resistive material. Use natural means or, where this is inadequate, forced-air circulation until fire-resistive material dries thoroughly.

1.7 SEQUENCING

A. Sequence and coordinate application of sprayed fire-resistive materials with other related work specified in other Sections to comply with the following requirements:

1. Provide temporary enclosures for interior applications to prevent deterioration of fire-resistive material due to exposure to unfavorable environmental conditions.
2. Avoid unnecessary exposure of fire-resistive material to abrasion and other damage likely to occur during construction operations subsequent to its application.
3. Do not begin applying fire-resistive material until clips, hangers, supports, sleeves, and other items penetrating fire protection are in place.
4. Defer installing ducts, piping, and other items that would interfere with applying fire-resistive material until application of fire protection is completed.
5. Do not install enclosing or concealing construction until after fire-resistive material has been applied, inspected, tested, and corrections have been made to defective applications.

1.8 WARRANTY

A. General Warranty: The special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Special Warranty: Submit a written warranty, executed by Contractor and cosigned by Installer, agreeing to repair or replace sprayed fire-resistive materials that fail within the specified warranty period.

1. Failures include, but are not limited to, cracking, flaking, eroding in excess of specified requirements; peeling; and delaminating of sprayed fire-resistive

materials from substrates due to defective materials and workmanship within the specified warranty period.

2. Not covered under the warranty are failures due to damage by occupants and Owner's maintenance personnel, exposure to environmental conditions other than those investigated and approved during fire-response testing, and other causes not reasonably foreseeable under conditions of normal use.

C. Warranty Period: 2 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CONCEALED SPRAYED FIRE-RESISTIVE MATERIALS

A. General: For concealed applications of sprayed fire-resistive materials, provide manufacturer's standard products complying with requirements indicated in this Article for material composition and physical properties representative of installed products.

B. Material Composition: As follows:

1. Cementitious sprayed fire-resistive material consisting of factory-mixed, dry formulation of gypsum or portland cement binders and lightweight mineral or synthetic aggregates mixed with water at Project site to form a slurry or mortar for conveyance and application.
2. Sprayed-fiber fire-resistive material consisting of factory-mixed, dry formulation of inorganic binders, mineral fibers, fillers, and additives conveyed in a dry state by pneumatic equipment and mixed with water at spray nozzle to form a damp, as-applied product.
3. Either composition indicated above.

C. Physical Properties: Minimum values, unless otherwise indicated, or higher values required to attain designated fire-resistance ratings, measured per standard test methods referenced with each property listed as follows:

1. Dry Density: 15 lb/cu. ft. for average and individual densities regardless of density indicated in referenced fire-resistive design, or greater if required to attain fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Appendix A, "Alternate Method for Density Determination."
2. Thickness: Provide minimum average thickness required for fire-resistive design indicated according to the following criteria, but not less than 0.375 inch per ASTM E 605.

a. Where the referenced fire-resistive design lists a thickness of 1 inch or greater, the minimum allowable individual thickness of sprayed fire-resistive material is the design thickness minus 0.25 inch.
b. Where the referenced fire-resistive design lists a thickness of less than 1 inch but more than 0.375 inch, the minimum allowable individual

thickness of sprayed fire-resistive material is the greater of 0.375 inch or 75 percent of the design thickness.

c. No reduction in average thickness is permitted for those fire-resistive designs whose fire-resistance ratings were established at densities of less than 15 lb/cu. ft.

3. Bond Strength: 150 lbf/sq. ft. per ASTM E 736 under the following conditions:

   a. Field test sprayed fire-resistive material that is applied to flanges of wide-flange structural-steel members on surfaces matching those that will exist for remainder of steel receiving fire-resistive material.
   b. If surfaces of structural steel receiving sprayed fire-resistive material are primed or otherwise painted, perform series of bond tests specified in UL's "Fire Resistance Directory" for coating materials.
   c. Minimum thickness of sprayed fire-resistive material tested in laboratory shall be 0.75 inch.

4. Compressive Strength: 5.21 lbf/sq. in. as determined in the laboratory per ASTM E 761. Minimum thickness of sprayed fire-resistive material tested shall be 0.75 inch and minimum dry density shall be as specified, but not less than 15 lb/cu. ft.
5. Corrosion Resistance: No evidence of corrosion per ASTM E 937.
6. Deflection: No cracking, spalling, delamination, or the like per ASTM E 759.
7. Effect of Impact on Bonding: No cracking, spalling, delamination, or the like per ASTM E 760.
8. Air Erosion: Maximum weight loss of 0.025 g/sq. ft. in 24 hours per ASTM E 859. For laboratory tests, minimum thickness of sprayed fire-resistive material is 0.75 inch, maximum dry density is 15 lb/cu. ft., test specimens are not prepurged by mechanically induced air velocities, and tests are terminated after 24 hours.

D. Fire-Test-Response Characteristics: Provide sprayed fire-resistive materials with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Flame Spread: 10 or less.
2. Smoke Developed: 0.

E. Available Products: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Cementitious Sprayed Fire-Resistive Material:

   a. Pyrolite 15; Carboline Co., Fireproofing Products Div.

b. Pyrolite 15 Blue; Carboline Co., Fireproofing Products Div.
c. Monokote Type MK-6/CBF; W.R. Grace & Co.--Conn., Construction Products Div.
d. Monokote Type MK-6/ED; W.R. Grace & Co.--Conn., Construction Products Div.
e. Retro-Gard; W.R. Grace & Co.--Conn., Construction Products Div.
f. Cafco 280; Isolatek International Corp., Cafco Products.
g. Cafco 300; Isolatek International Corp., Cafco Products.
h. Cafco 300 SB; Isolatek International Corp., Cafco Products.
i. Mandolite CP2; Mandoval Vermiculite Products, Inc.
j. 5EF; Southwest Vermiculite Co., Inc.
k. 5GP; Southwest Vermiculite Co., Inc.

2. Sprayed-Fiber Fire-Resistive Material:

a. Cafco Blaze-Shield II; Isolatek International Corp., Cafco Products.
b. Type JN-HD; Isolatek International Corp., Cafco Products.

2.2 EXPOSED SPRAYED FIRE-RESISTIVE MATERIALS

A. General: For exposed applications of sprayed fire-resistive materials, provide manufacturer's standard products complying with requirements indicated for material composition and for minimum physical properties of each product listed, measured by standard test methods referenced with each property.

B. Cementitious Sprayed Fire-Resistive Material: Factory-mixed, dry, cement aggregate formulation, chloride-free formulation of gypsum or portland cement binders, additives, and inorganic aggregates, mixed with water at Project site to form a slurry or mortar for conveyance and application, complying with the following requirements:

C. Sprayed-Fiber Fire-Resistive Material: Factory-mixed, dry formulation of inorganic binders, mineral fibers, fillers, and additives conveyed in a dry state by pneumatic equipment and mixed with water at spray nozzle to form a damp, as-applied product, complying with the following requirements:

1. Dry Density: Values for average and individual densities as required for fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Appendix A, "Alternate Method for Density Determination," but with an average density of not less than 22 lb/cu. ft.
2. Bond Strength: 434 lbf/sq. ft. per ASTM E 736.
3. Compressive Strength: 51 lbf/sq. in. per ASTM E 761.
4. Dry Density: Values for average and individual densities as required for fire-resistance ratings indicated, per ASTM E 605 or AWCI Technical Manual 12-A, Appendix A, "Alternate Method for Density Determination," but with an average density of not less than 39 lb/cu. ft.
5. Bond Strength: 1000 lbf/sq. ft. per ASTM E 736.

6. Compressive Strength: 300 lbf/sq. in. per ASTM E 761.
7. Effect of Impact on Bonding: No cracking, spalling, delamination, or the like per ASTM E 760.
8. Air Erosion: Maximum weight loss of 0.025 g/sq. ft. per ASTM E 859.
9. Combustion Characteristics: Passes ASTM E 136.

D. Fire-Test-Response Characteristics: Provide sprayed fire-resistive materials with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

1. Flame Spread: 10 or less.
2. Smoke Developed: 0.

E. Water-Based Intumescent Mastic Fire-Resistive Material: Factory-mixed formulation consisting of water-based mastic, with inorganic reinforcing fibers for spray application.

F. Nonwater-Based Intumescent Mastic Fire-Resistive Material: Factory-mixed formulation consisting of mastic, with inorganic reinforcing fibers for spray application.

G. Thin-Film Intumescent Mastic Fire-Resistive Material: Factory-mixed mastic coating system, spray applied as thin-film coating, as follows:

1. Single-component system consisting of intumescent coating.
2. Multicomponent system consisting of intumescent base coat and topcoat.

H. Colors and Glosses: As selected by Architect from manufacturer's full range of colors and glosses.

I. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. Cement-Aggregate Cementitious Sprayed Fire-Resistive Material:

a. Pyrocrete 239; Carboline Co., Fireproofing Products Div.
b. Pyrocrete 240; Carboline Co., Fireproofing Products Div.
c. Pyrocrete 241; Carboline Co., Fireproofing Products Div.
d. Pyrolite 1 MD; Carboline Co., Fireproofing Products Div.
e. Monokote Type Z106; W.R. Grace & Co.--Conn., Construction Products Div.
f. Monokote Type Z146; W.R. Grace & Co.--Conn., Construction Products Div.
g. Cafco 400; Isolatek International Corp., Cafco Products.
h. Cafco 800; Isolatek International Corp., Cafco Products.
i. Fendolite M-II; Mandoval Vermiculite Products, Inc.
j. Mandolite P-20; Mandoval Vermiculite Products, Inc.

k. Pyrok-HD; Pyrok, Inc.
l. Pyrok-MD; Pyrok, Inc.
m. 7GP; Southwest Vermiculite Co., Inc.
n. 7MP; Southwest Vermiculite Co., Inc.
o. 1AX; Southwest Vermiculite Co., Inc.
p. 1BX; Southwest Vermiculite Co., Inc.
q. 1XR; Southwest Vermiculite Co., Inc.

2. Sprayed-Fiber Fire-Resistive Material:

a. Cafco Deck Shield I; Isolatek International Corp., Cafco Products.

2.3 AUXILIARY FIRE-RESISTIVE MATERIALS

A. General: Provide auxiliary fire-resistive materials that are compatible with sprayed fire-resistive materials and substrates and are approved by UL or another testing and inspecting agency acceptable to authorities having jurisdiction for use in fire-resistive designs indicated.

B. Substrate Primers: For use on each substrate and with each sprayed fire-resistive product, provide primer that complies with one or more of the following requirements:

1. Primer's bond strength complies with requirements specified in UL's "Fire Resistance Directory" for coating materials based on a series of bond tests per ASTM E 736.
2. Primer is identical to those used in assemblies tested for fire-test-response characteristics of sprayed fire-resistive material per ASTM E 119 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.

C. Adhesive for Bonding Fire-Resistive Material: Product approved by manufacturer of sprayed fire-resistive material.

D. Metal Lath: Expanded metal lath fabricated from material of weight, configuration, and finish required to comply with fire-resistive designs indicated and fire-resistive product manufacturer's written recommendations. Include clips, lathing accessories, corner beads, and other anchorage devices required to attach lath to substrates and to receive sprayed fire-resistive material.

E. Reinforcing Fabric: Glass-fiber fabric of type, weight, and form required to comply with fire-resistive designs indicated, approved by manufacturer of intumescent mastic fire-resistive material.

F. Reinforcing Mesh: Metallic mesh reinforcement of type, weight, and form required to comply with fire-resistive designs indicated, approved by manufacturer of intumescent mastic fire-resistive material. Include pins and attachment.

G. Topcoats: Type by manufacturer of each sprayed fire-resistive material for applications indicated.

H. Cement-Based Topcoat: Factory-mixed cementitious hardcoat formulation for trowel or spray application over concealed and exposed sprayed fire-resistive materials by manufacturer of latter products.

1. Product: Subject to compliance with requirements, provide "Hardcoat 4500" by Carboline Co., Fireproofing Products Div.

I. Water-Based Permeable Surface Coating: Factory-mixed formulation for brush, roller, or spray application over concealed and exposed formulations by manufacturer of latter products.

1. Product: Subject to compliance with requirements, provide "Cafco Topcoat" by Isolatek International Corp., Cafco Products.

J. Sealer for Sprayed-Fiber Fire-Resistive Material: Transparent-drying, water-dispersible protective coating by manufacturer of sprayed-fiber fire-resistive material.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, to determine whether they are in satisfactory condition to receive sprayed fire-resistive material. A substrate is in satisfactory condition if it complies with the following:

1. Substrates comply with requirements in the Section where the substrate and related materials and construction are specified.
2. Substrates are free of oil, grease, rolling compounds, incompatible primers, loose mill scale, dirt, or other foreign substances capable of impairing bond of fire-resistive material with substrate under conditions of normal use or fire exposure.
3. Objects penetrating fire-resistive material, including clips, hangers, support sleeves, and similar items, are securely attached to substrates.
4. Substrates are not obstructed by ducts, piping, equipment, and other suspended construction that will interfere with applying fire-resistive material.

B. Conduct tests according to fire-resistive material manufacturer's written recommendations to verify that substrates are free of oil, rolling compounds, and other substances capable of interfering with bond.

C. Do not proceed with installation of fire-resistive material until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrates of substances that could impair bond of fire-resistive material, including oil, grease, rolling compounds, incompatible primers, and loose mill scale.

B. For exposed applications, repair substrates to remove any surface imperfections that could affect uniformity of texture and thickness in finished surface of sprayed fire-resistive material. Remove minor projections and fill voids that would telegraph through fire-resistive products after application.

C. Cover other work subject to damage from fallout or overspray of fire-resistive materials during application. Provide temporary enclosure as required to confine spraying operations, protect the environment, and ensure maintenance of adequate ambient conditions for temperature and ventilation.

3.3 INSTALLATION, GENERAL

A. Comply with fire-resistive material manufacturer's written instructions for mixing materials, application procedures, and types of equipment used to convey and spray on fire-resistive material, as applicable to particular conditions of installation and as required to achieve fire-resistance ratings indicated.

B. Apply sprayed fire-resistive material that is identical to products tested as specified in Part 1 in "Product Test Reports" in "Submittals" Article, with respect to rate of application, accelerator use, sealers, topcoats, tamping, troweling, water overspray, or other materials and procedures affecting test results.

C. Install metal lath, as required, to comply with fire-resistance ratings and fire-resistive material manufacturer's written recommendations for conditions of exposure and intended use. Securely attach lath to substrate in position required for support and reinforcement of fire-resistive material. Use anchorage devices of type recommended in writing by fire-resistive material manufacturer. Attach lathing accessories where indicated or required for secure attachment to substrate.

D. Extend fire-resistive material in full thickness over entire area of each substrate to be protected. Unless otherwise recommended in writing by fire-resistive material manufacturer, install body of fire-resistive covering in a single course.

E. Spray apply fire-resistive materials to maximum extent possible. Following the spraying operation in each area, complete the coverage by trowel application or other placement method recommended in writing by manufacturer.

3.4 INSTALLING CONCEALED SPRAYED FIRE-RESISTIVE MATERIALS

A. Apply concealed fire-resistive material in thicknesses and densities required to achieve fire-resistance ratings designated for each condition, and comply with requirements for thickness specified in Part 2 "Concealed Sprayed Fire-Resistive Materials" Article.

B. Apply water overspray to concealed, sprayed-fiber fire-resistive material as required to obtain designated fire-resistance rating and where indicated.

C. Apply sealer to concealed sprayed fire-resistive material where indicated.

3.5 INSTALLING EXPOSED SPRAYED FIRE-RESISTIVE MATERIALS

A. Apply exposed sprayed fire-resistive material in thicknesses and densities required to achieve fire-resistance ratings designated for each condition, unless greater thicknesses and densities are indicated.

B. Provide a uniform finish complying with description indicated for each type of material and matching Architect's sample or, if none, finish approved for field-erected mockup.

C. Apply cement-aggregate cementitious sprayed fire-resistive material to produce the following finish:

1. Even spray-textured finish by rolling flat surfaces of fireproofed members with a damp paint roller to remove drippings and excessive roughness.

D. Apply sprayed-fiber fire-resistive material to produce the following finish:

1. Spray-textured finish.
2. Apply sealer where indicated.

E. Apply magnesium oxychloride fire-resistive material to produce the following finish:

1. Even spray-textured finish by rolling flat surfaces of fireproofed members with a damp paint roller to remove drippings and excessive roughness.

F. Apply intumescent mastic fire-resistive material as follows:

1. Install reinforcing fabric where indicated or required.
2. Finish: Even spray-textured finish produced by lightly rolling flat surfaces of fire-protected members before drying of fire-resistive material to smooth out surface irregularities and to seal in surface fibers.

G. Apply thin-film intumescent mastic fire-resistive material as follows:

1. Finish: Spray apply successive base coat(s) and finish topcoat. Allow to dry and cure between coats. Determine required dry film thickness before applying finish topcoat.

3.6 FIELD QUALITY CONTROL

A. Testing Agency: The Contractor will engage a qualified independent testing and inspecting agency to perform field tests and inspections and to prepare test reports.

1. Testing and inspecting agency will interpret tests and state in each report whether tested work complies with or deviates from requirements.

B. Testing and inspecting of completed applications of sprayed fire-resistive material will take place in successive stages, in areas of extent and using methods as follows. Do not proceed with application of fire-resistive material for the next area until test results for previously completed applications of fire-resistive material show compliance with requirements.

1. Extent: For each 100-sq. ft. area, or partial area, on each floor, testing and inspecting agency will evaluate the following characteristics. Tested values must equal or exceed values indicated and values required for approved fire-resistance design.

a. Thickness for Structural Frame Members: From a sample of 25 percent of structural members per floor, taking 9 measurements at a single cross section for structural frame beams or girders, 7 measurements of a single cross section for joists and trusses, and 12 measurements of a single cross section for columns per ASTM E 605.
b. Density for Structural Frame Members: At frequency and from sample size indicated for determining thickness of each type of construction, per ASTM E 605 or AWCI Technical Manual 12-A, Appendix A, "Alternate Method for Density Determination."
d. Bond Strength for Structural Framing Members: Cohesion and adhesion at frequency and from sample size indicated for determining thickness of each type of construction, per ASTM E 736.

2. When testing discovers applications of fire-resistive material not in compliance with requirements, testing and inspecting agency will perform additional random testing to determine extent of noncompliance.

C. Remove and replace applications of fire-resistive material where test results indicate that they do not comply with specified requirements for cohesion and adhesion or for density, or both.

D. Apply additional fire-resistive material per manufacturer's written instructions where test results indicate that thickness does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.7 CLEANING, PROTECTING, AND REPAIR

A. Cleaning: Immediately after completing spraying operations in each containable area of Project, remove material overspray and fallout from surfaces of other construction and clean exposed surfaces to remove evidence of soiling.

B. Cure exposed cementitious sprayed fire-resistive material according to product manufacturer's written recommendations to prevent premature drying.

C. Protect fire-resistive material, according to advice of product manufacturer and Installer, from damage resulting from construction operations or other causes so fire protection will be without damage or deterioration at the time of Substantial Completion.

D. Coordinate application of fire-resistive material with other construction to minimize the need to cut or remove fire protection. As installation of other construction proceeds, inspect fire-resistive material and patch any damaged or removed areas.

E. Repair or replace work that has not been successfully protected.

END OF SECTION 07811

SECTION 08800 - GLAZING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to the work of this Section.

1.2 SUMMARY

A. This Section includes glazing for the following products and applications, including those specified in other Sections where glazing requirements are specified by reference to this Section:

1. Doors.
2. Interior borrowed lites.
3. Interior storefront framing.
4. Interior wall finish.

1.3 DEFINITIONS

A. Deterioration of Coated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning coated glass contrary to manufacturer's written instructions. Defects include peeling, cracking, and other indications of deterioration in metallic coating.

B. Deterioration of Laminated Glass: Defects developed from normal use that are attributed to the manufacturing process and not to causes other than glass breakage and practices for maintaining and cleaning laminated glass contrary to manufacturer's written instructions. Defects include edge separation, delamination materially obstructing vision through glass, and blemishes exceeding those allowed by referenced laminated-glass standard.

1.4 PERFORMANCE REQUIREMENTS

A. General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

B. Glass Design: Glass thicknesses indicated are minimums and are for detailing only. Confirm glass thicknesses by analyzing Project loads and in-service conditions. Provide glass lites for various size openings in nominal thicknesses indicated, but not less

than thicknesses and in strengths (annealed or heat treated) required to meet or exceed to comply with ASTM E 1300.

1.5 SUBMITTALS

A. Product Data: For each glass product and glazing material indicated.

B. Samples: For the following products, in the form of 12-inch- square Samples for glass.

1. Each color of tinted float glass.
2. Fire-resistive glazing products.
3. Each type of laminated glass with colored interlayer.

C. Glazing Schedule: Use same designations indicated on Drawings for glazed openings in preparing a schedule listing glass types and thicknesses for each size opening and location.

D. Product Certificates: Signed by manufacturers of glass and glazing products certifying that products furnished comply with requirements.

E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

F. SWRI Validation Certificate: For each elastomeric glazing sealant specified to be validated by SWRI's Sealant Validation Program.

G. Warranties: Special warranties specified in this Section.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent to that indicated for Project and whose work has resulted in construction with a record of successful in-service performance.

B. Source Limitations for Clear Glass: Obtain clear float glass from one primary-glass manufacturer.

C. Source Limitations for Tinted Glass: Obtain tinted float glass from one primary-glass manufacturer for each tint color indicated.

D. Source Limitations for Laminated Glass: Obtain laminated-glass units from one manufacturer using the same type of glass lites and interlayers for each type of unit indicated.

E. Source Limitations for Glazing Accessories: Obtain glazing accessories from one source for each product and installation method indicated.

F. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to NFPA 252.

G. Safety Glass: Category II materials complying with testing requirements in 16 CFR 1201 and ANSI Z97.1.

1. Subject to compliance with requirements, permanently mark safety glass with certification label of Safety Glazing Certification Council or another certification agency acceptable to authorities having jurisdiction.

H. Glazing Publications: Comply with published recommendations of glass product manufacturers and organizations below, unless more stringent requirements are indicated. Refer to these publications for glazing terms not otherwise defined in this Section or in referenced standards.

1. GANA Publications: GANA'S "Glazing Manual" and "Laminated Glass Design Guide."
2. SIGMA Publications: SIGMA TM-3000, "Vertical Glazing Guidelines," and SIGMA TB-3001, "Sloped Glazing Guidelines."

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not proceed with glazing when ambient and substrate temperature conditions are outside limits permitted by glazing material manufacturers and when glazing channel substrates are wet from rain, frost, condensation, or other causes.

1. Do not install liquid glazing sealants when ambient and substrate temperature conditions are outside limits permitted by glazing sealant manufacturer or below 40 deg F.

1.9 WARRANTY

A. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall

be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. Manufacturer's Special Warranty on Coated-Glass Products: Written warranty, made out to Owner and signed by coated-glass manufacturer agreeing to furnish replacements for those coated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: Ten (10) years from date of Substantial Completion.

C. Manufacturer's Special Warranty on Laminated Glass: Written warranty, made out to Owner and signed by laminated-glass manufacturer agreeing to furnish replacements for laminated-glass units that deteriorate as defined in "Definitions" Article, f.o.b. the nearest shipping point to Project site, within specified warranty period indicated below.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 HEAT TREATED FLOAT GLASS [TYPE-1] (CLEAR TEMPERED)

A. Uncoated Clear Fully Tempered (Heat-Treated) Float Glass: ASTM C 1048; Type I (transparent glass, flat); Quality q3 (glazing select); Class I (clear).

1. Fabrication Process: By horizontal (roller-hearth) process with roll-wave distortion parallel to bottom edge of glass as installed, unless otherwise indicated.

2.2 TINTED LAMINATED GLASS [TYPE-2]

A. Tinted Laminated Glass: Comply with ASTM C 1172 for kinds of laminated glass indicated.

1. Kind LT, consisting of two lites of fully tempered float glass.
2. Inner Lite: Type I (transparent glass, flat) float glass.

a. Class 1 (clear).
b. Kind FT (fully tempered).
c. Thickness: As indicated.

3. Outer Lite: Type I (transparent glass, flat) float glass.

a. Class 1 (clear).
b. Kind FT (fully tempered).
c. Thickness: As indicated.

B. Interlayer: Interlayer material as indicated below, in colors, and of thickness indicated with a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after laminating glass lites and installation.

1. Interlayer Material: Polyvinyl butyral sheets, 0.030 inch.

a. Interlayer Color: Match Architect's Sample.

C. Laminating Process: Fabricate laminated glass to produce glass free of foreign substances and air or glass pockets as follows:

1. Laminate lites with polyvinyl butyral interlayer in autoclave with heat plus pressure.

2.3 WIRED GLASS [TYPE-3]

A. Wired Glass: ASTM C 1036, Type I (wired glass, flat), Class 1 (clear), Quality q8 (glazing); of form and mesh pattern indicated below:

1. Polished Wired Glass: Form 1 (wired, polished both sides), and as follows:

a. Mesh m1 (diamond).
b. Mesh m2 (square).

B. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Polished Wired Glass:

a. Ashai Glass Co./Ama Glass Corp.
b. Central Glass Co., Ltd.
c. Nippon Sheet Glass Co., Ltd.
d. Pilkington Glass Ltd.

2.4 COATED FLOAT GLASS [TYPE-4] (MIRROR)

A. General: Provide coated glass complying with requirements indicated below.

1. Provide Kind HS (heat strengthened) coated float glass.
2. See Specification Section 10801, Part 3.3.F for mirror type.

2.5 LAMINATED TEMPERED GLASS [TYPE-5] (CLEAR STRUCTURAL GLASS)

A. Laminated Glass: Comply with ASTM C 1172 for kinds of laminated glass indicated.

1. Kind LT, consisting of two lites of fully tempered float glass.
2. Inner Lite: Type I (transparent glass, flat) float glass.

    a. Class 1 (clear).
    b. Kind FT (fully tempered).
    c. Thickness: As indicated.

3. Outer Lite: Type I (transparent glass, flat) float glass.

    a. Class 1 (clear).
    b. Kind FT (fully tempered).
    c. Thickness: As indicated.

B. Interlayer: Interlayer material as indicated below, clear, and of thickness indicated with a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after laminating glass lites and installation.

1. Interlayer Material: Polyvinyl butyral sheets, 0.030 inch.

    a. Interlayer Color: Clear.

C. Laminating Process: Fabricate laminated glass to produce glass free of foreign substances and air or glass pockets as follows:

1. Laminate lites with polyvinyl butyral interlayer in autoclave with heat plus pressure.

2.6 ONEWAY COATED (MIRROR) FLOAT GLASS [TYPE-6]

A. General: Provide coated glass complying with requirements indicated.

1. Provide Kind HS (heat strengthened) coated float glass.

2.7 “FROSTED” LAMINATED GLASS [TYPE-7]

A. Manufacturer: ARCHETYPE FRAMELESS GLASS, INC.

1. Product # : 005C-1145

B. Laminated Glass: Comply with ASTM C 1172 for kinds of laminated glass indicated.

1. Kind LT, consisting of two lites of fully tempered float glass.
2. Inner Lite: Type I (transparent glass, flat) float glass.

    a. Class 1 (clear).
    b. Kind FT (fully tempered).

c. Thickness: As indicated.

3. Outer Lite: Type I (transparent glass, flat) float glass.

a. Class 1 (clear).
b. Kind FT (fully tempered).
c. Thickness: As indicated.

C. Interlayer: Interlayer material as indicated below, in colors, and of thickness indicated with a proven record of no tendency to bubble, discolor, or lose physical and mechanical properties after laminating glass lites and installation.

1. Interlayer Material: Polyvinyl butyral sheets, 0.030 inch.

a. Interlayer Color: Manufacturer' s standard for "frosted" effect.

D. Laminating Process: Fabricate laminated glass to produce glass free of foreign substances and air or glass pockets as follows:

1. Laminate lites with polyvinyl butyral interlayer in autoclave with heat plus pressure.

E. Opaqueness: Reverse surface of glass is to be painted.

2.8 ELASTOMERIC GLAZING SEALANTS

A. General: Provide products of type indicated, complying with the following requirements:

1. Compatibility: Select glazing sealants that are compatible with one another and with other materials they will contact, including glass products, seals of insulating-glass units, and glazing channel substrates, under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
2. Suitability: Comply with sealant and glass manufacturers' written instructions for selecting glazing sealants suitable for applications indicated and for conditions existing at time of installation.
3. Colors of Exposed Glazing Sealants: Match Architect's samples.

B. Elastomeric Glazing Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied, chemically curing sealant in the Glazing Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.

C. Low-Modulus Nonacid-Curing Silicone Glazing Sealant: Where glazing sealants of this designation are indicated, provide products complying with the following:

1. Products: Available products include the following:

    a. 790; Dow Corning.
    b. Silpruf; GE Silicones.
    c. UltraPruf SCS2300; GE Silicones.
    d. HiFlex 331; NUCO Industries, Inc.
    e. NuFlex 309; NUCO Industries, Inc.
    f. VP 275; Ohio Sealants, Inc.
    g. 864; Pecora Corporation.
    h. PSI-641; Polymeric Systems, Inc.
    i. Omniseal; Sonneborn, Div of ChemRex, Inc.
    j. Spectrem 1; Tremco.

2. Type and Grade: S (single component) and NS (nonsag).
3. Class: 25.
4. Additional Movement Capability: 50 percent movement in extension and 50 percent movement in compression for a total of 100 percent movement.
5. Use Related to Exposure: NT (nontraffic).
6. Uses Related to Glazing Substrates: M, G, A, and, as applicable to glazing substrates indicated, O.

    a. Use O Glazing Substrates: Color anodic aluminum, aluminum coated with a high-performance coating.

D. Glazing Sealant for Fire-Resistive Glazing Products: Identical to product used in test assembly to obtain fire-protection rating.

2.9 GLAZING TAPES

A. Back-Bedding Mastic Glazing Tape: Preformed, butyl-based elastomeric tape with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape and glass manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:

1. AAMA 807.3 tape, for glazing applications in which tape is not subject to continuous pressure.

B. Expanded Cellular Glazing Tape: Closed-cell, PVC foam tape; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:

1. Type 2, for glazing applications in which tape is used in combination with a full bead of liquid sealant.

2.10 GLAZING GASKETS

A. Lock-Strip Gaskets: Neoprene extrusions in size and shape indicated, fabricated into frames with molded corner units and zipper lock strips, complying with ASTM C 542, black.

B. Dense Compression Gaskets: Molded or extruded gaskets of material indicated below, complying with standards referenced with name of elastomer indicated below, and of profile and hardness required to maintain watertight seal:

1. EPDM, ASTM C 864.
2. Silicone, ASTM C 1115.
3. Thermoplastic polyolefin rubber, ASTM C 1115.
4. Any material indicated above.

C. Soft Compression Gaskets: Extruded or molded, closed-cell, integral-skinned gaskets of material indicated below; complying with ASTM C 509, Type II, black; and of profile and hardness required to maintain watertight seal:

1. EPDM.
2. Silicone.
3. Thermoplastic polyolefin rubber.
4. Any material indicated above.

2.11 MISCELLANEOUS GLAZING MATERIALS

A. General: Provide products of material, size, and shape complying with referenced glazing standard, requirements of manufacturers of glass and other glazing materials for application indicated, and with a proven record of compatibility with surfaces contacted in installation.

B. Cleaners, Primers, and Sealers: Types recommended by sealant or gasket manufacturer.

C. Setting Blocks: Elastomeric material with a Shore A durometer hardness of 85, plus or minus 5.

D. Spacers: Elastomeric blocks or continuous extrusions with a Shore A durometer hardness required by glass manufacturer to maintain glass lites in place for installation indicated.

E. Edge Blocks: Elastomeric material of hardness needed to limit glass lateral movement (side walking).

F. Perimeter Insulation for Fire-Resistive Glazing: Identical to product used in test assembly to obtain fire-resistance rating.

2.12 MASTIC

A. Mastic for installing decorative glass panels on drywall.

2.13 FABRICATION OF GLASS AND OTHER GLAZING PRODUCTS

A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing standard, to comply with system performance requirements.

B. Grind smooth and polish exposed glass edges.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine framing glazing, with Installer present, for compliance with the following:

1. Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.
2. Presence and functioning of weep system.
3. Minimum required face or edge clearances.
4. Effective sealing between joints of glass-framing members.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings not firmly bonded to substrates.

3.3 GLAZING, GENERAL

A. Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials, unless more stringent requirements are indicated, including those in referenced glazing publications.

B. Glazing channel dimensions, as indicated on Drawings, provide necessary bite on glass, minimum edge and face clearances, and adequate sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

C. Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when installed, could weaken glass and impair performance and appearance.

D. Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-substrate testing.

E. Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless otherwise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

F. Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

G. Provide spacers for glass lites where the length plus width is larger than 50 inches as follows:

1. Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated ability to maintain required face clearances and to comply with system performance requirements.
2. Provide 1/8-inch minimum bite of spacers on glass and use thickness equal to sealant width. With glazing tape, use thickness slightly less than final compressed thickness of tape.

H. Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing channel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing publications.

I. Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

J. Where wedge-shaped gaskets are driven into one side of channel to pressurize sealant or gasket on opposite side, provide adequate anchorage so gasket cannot walk out when installation is subjected to movement.

K. Square cut wedge-shaped gaskets at corners and install gaskets in a manner recommended by gasket manufacturer to prevent corners from pulling away; seal corner joints and butt joints with sealant recommended by gasket manufacturer.

3.4 TAPE GLAZING

A. Position tapes on fixed stops so that, when compressed by glass, their exposed edges are flush with or protrude slightly above sightline of stops.

B. Install tapes continuously, but not necessarily in one continuous length. Do not stretch tapes to make them fit opening.

C. Where framing joints are vertical, cover these joints by applying tapes to heads and sills first and then to jambs. Where framing joints are horizontal, cover these joints by applying tapes to jambs and then to heads and sills.

D. Place joints in tapes at corners of opening with adjoining lengths butted together, not lapped. Seal joints in tapes with compatible sealant approved by tape manufacturer.

E. Do not remove release paper from tape until just before each glazing unit is installed.

F. Center glass lites in openings on setting blocks and press firmly against tape by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings.

3.5 GASKET GLAZING (DRY)

A. Fabricate compression gaskets in lengths recommended by gasket manufacturer to fit openings exactly, with stretch allowance during installation.

B. Insert soft compression gasket between glass and frame or fixed stop so it is securely in place with joints miter cut and bonded together at corners.

C. Center glass lites in openings on setting blocks and press firmly against soft compression gasket by inserting dense compression gaskets formed and installed to lock in place against faces of removable stops. Start gasket applications at corners and work toward centers of openings. Compress gaskets to produce a weathertight seal without developing bending stresses in glass. Seal gasket joints with sealant recommended by gasket manufacturer.

D. Install gaskets so they protrude past face of glazing stops.

3.6 PROTECTION AND CLEANING

A. Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

B. Protect glass from contact with contaminating substances resulting from construction operations, including weld splatter. If, despite such protection, contaminating substances do come into contact with glass, remove them immediately as recommended by glass manufacturer.

C. Remove and replace glass that is broken, chipped, cracked, abraded, or damaged in any way, including natural causes, accidents, and vandalism, during construction period.

D. Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for inspections that establish date of Substantial Completion. Wash glass as recommended by glass manufacturer.

END OF SECTION 08800

SECTION 09841 - ACOUSTICAL WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Back-mounted acoustical wall panels.

1.2 SUBMITTALS

A. Product Data: For each type of panel edge, core material, and mounting indicated.

1. Include manufacturer's product data for installation adhesive, including printed statement of VOC content.

B. Shop Drawings: For acoustical wall panels. Include mounting devices and details; details at panel head, base, joints, and corners; and details at ceiling, floor base, and wall intersections. Include elevations showing panel sizes and direction of fabric weave and pattern matching. Indicate panel edge and core materials.

C. Coordination Drawings: Show intersections with wall base, shelves, countertops, drawers, doors, chalk rails, electrical outlets and switches, thermostats, lighting fixtures, air outlets and inlets, speakers, sprinklers, access panels, and other adjacent work. Show operation of casework doors and drawers and doors.

D. Samples for Initial Selection: For each type of fabric facing material from acoustical wall panel manufacturer's full range.

1. Fabric: Full-width by 36-inch long Sample from dye lot to be used for the Work, and as follows:

a. With specified treatments applied.
b. Show complete pattern repeat.
c. Mark top and face of fabric.

2. Panel Edge: 12 inch long Sample showing edge profile, corner, and finish.
3. Core Material: 12 inch square Sample showing corner.
4. Mounting Device: Full-size Sample.
5. Sample Panels: No larger than 36 by 36 inches. Show joints and mounting methods.

E. Samples for Verification: 8 by 11 inch units of each type of acoustical wall panel indicated; in sets for each color, texture, and pattern specified for facing materials,

showing the full range of variations expected in these characteristics. Include samples of installation devices and accessories.

F. Product Certificates: For each type of acoustical wall panel, signed by product manufacturer.

G. Qualification Data: For fabricator and testing agency.

H. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of acoustical wall panel.

I. Maintenance Data: For acoustical wall panels to include in maintenance manuals. Include fabric manufacturers' written cleaning and stain-removal recommendations.

J. Warranty: Special warranty specified in this Section.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: A firm experienced in manufacturing acoustical wall panels similar to those indicated for this Project and with a record of successful in-service performance.

B. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.

C. Source Limitations for Acoustical Wall Panels: Obtain acoustical wall panels from one source with resources to provide products of consistent quality in appearance and physical properties.

D. Fire-Test-Response Characteristics: Provide acoustical wall panels with the following surface-burning characteristics as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify acoustical wall panels with appropriate markings of applicable testing and inspecting agency.

1. Flame Spread: 25 or less.
2. Smoke Developed: 450 or less.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Protect acoustical wall panels from excessive moisture when shipping, storing, and handling. Deliver in unopened bundles and store in a dry place with adequate air circulation. Do not deliver material to building until wet-work, such as concrete and plaster, has been completed and cured to a condition of equilibrium. Protect panel edges from crushing and impact.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Do not install acoustical wall panels until construction in spaces is complete and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Air-Quality Limitations: Protect acoustical wall panels from exposure to airborne odors, such as tobacco smoke, and install panels under conditions free from odor contamination of ambient air.

C. Field Measurements: Verify wall surface dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the work.

PART 2 - PRODUCTS

2.1 ACOUSTICAL WALL PANELS, GENERAL

A. Fabricate panels to sizes and configurations indicated; attach facing materials to cores to produce installed panels with visible surfaces fully covered and free from waves in fabric weave, wrinkles, sags, blisters, seams, adhesive, or other foreign matter.

1. Fabricate back-mounted panels in factory to exact sizes required to fit wall surfaces, based on field measurements of completed substrates indicated to receive acoustical wall panels.

2. Where square corners are indicated, tailor corners.
3. Where radius corners are indicated, attach facing material so there are no seams or gathering of material.
4. Where fabrics with directional or repeating patterns, or directional weave, are indicated, mark fabric top and attach fabric in same direction.
5. Where fabric facings with seams are indicated, fabricate invisible seams and comply with Shop Drawings for location.

B. Dimensional Tolerances of Finished Units: Plus or minus 1/16 inch for the following:

1. Thickness.
2. Edge straightness.
3. Overall length and width.
4. Squareness from corner to corner.
5. Chords, radii, and diameters.

C. Sound-Absorption Performance: Provide acoustical wall panels with minimum noise reduction coefficients indicated, as determined by testing per ASTM C 423 for mounting type specified under individual product requirements in the Acoustical Wall Panel Schedule at the end of Part 3.

D. Panel Characteristics: Comply with requirements indicated in the Acoustical Wall Panel Schedule at the end of Part 3.

E. Back-Mounting Accessories: Manufacturer's standard or recommended accessories for securely mounting panels, of type and size indicated, to substrates provided; and complying with the following requirements:

1. Mechanically Mounted Edge-Reinforced Panels: Metal panel-clip and base-support bracket system consisting of two-part panel clips, with one part of each clip mechanically attached to back of panel and the other part to wall substrate, designed to support panels laterally; and base-support brackets designed to support full weight of panels; with both designed to allow for panel removal.
2. Mechanically Mounted Metal-Framed Panels: Metal panel-clip system designed to engage metal framing of panels and to allow for panel removal, with base-support brackets where recommended by manufacturer to support weight of panels.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and blocking, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting acoustical wall panel performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install acoustical wall panels in locations indicated with vertical surfaces and edges plumb, top edges level and in alignment with other panels, and scribed to fit adjoining work accurately at borders and at penetrations. Comply with panel manufacturer's written instructions for installation of panels using type of mounting accessories indicated or, if not indicated, as recommended by manufacturer.

1. Cut units to be at least 50 percent of unit width, with facing material extended over cut edge to match uncut edge. Scribe acoustical wall panels to fit adjacent work. Butt joints tightly.

B. Construction Tolerances: As follows:

1. Variation from Plumb and Level: Plus or minus 1/16 inch.
2. Variation of Joints from Hairline: Not more than 1/16 inch.

3.3 CLEANING

A. Clip loose threads; remove pills and extraneous materials.

B. Clean panels with fabric facing, on completion of installation, to remove dust and other foreign materials according to manufacturer's written instructions.

C. Remove surplus materials, rubbish, and debris resulting from acoustical wall panel installation, on completion of the Work, and leave areas of installation in a neat and clean condition.

3.4 PROTECTION

A. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure acoustical wall panels are without damage or deterioration at time of Substantial Completion.

B. Replace panels that cannot be cleaned and repaired, in a manner approved by COR, before time of Substantial Completion.

3.5 ACOUSTICAL WALL PANEL SCHEDULE

A. Back-Mounted, Edge-Reinforced Acoustical Wall Panels AWP-1: Manufacturer's standard panel construction consisting of facing material laminated to front face, edges, and back border of dimensionally stable, rigid glass fiber board core; with edges chemically hardened or impact resistant and resilient to reinforce panel perimeter against warpage and damage; and complying with the following requirements:

1. Facing Material: Manufacturer's standard acoustically transparent vinyl fabric from same dye lot; color and pattern as selected by Architect from manufacturer's full range.
2. Nominal Core Density: 6 to 7 lb/cu. Ft.
3. Nominal Overall Panel Thickness and Noise Reduction Coefficient: 1 inch and not less than NRC 0.80. for Type A mounting per ASTM E 795.
4. Panel Width: As indicated.
5. Panel Height: As indicated.
6. Edge Detail: Chamfered (beveled).
7. Corner Detail: Off-square to form continuous profile to match edge detail, as indicated.
8. Tackable, Impact-Resistant, High-Density Face Layer: 1/8 inch thick layer of molded glass-fiber board with a minimum nominal density of 16 to 18 lb/cu. ft. laminated to face of core.

B. Back-Mounted, Edge-Framed Acoustical Wall Panels AWP-2: Manufacturer's standard panel construction consisting of facing material stretched over front face of edge-framed, dimensionally stable, rigid glass-fiber board core and bonded or attached to edges and back of frame; and complying with the following requirements:

1. Facing Material: Manufacturer's standard acoustically transparent vinyl fabric from same dye lot; color and pattern as selected by Architect from manufacturer's full range.
2. Nominal Core Density: 6 to 7 lb/cu. Ft.
3. Nominal Overall Panel Thickness and Noise Reduction Coefficient: 1 inch and not less than NRC 0.80. for Type A mounting per ASTM E 795.
4. Panel Width: As indicated.
5. Panel Height: As indicated.
6. Edge Detail: Square.
7. Framing: Extruded aluminum.
8. Tackable, Impact-Resistant, High-Density Face Layer: 1/8 inch thick layer of molded glass-fiber board with a minimum nominal density of 16 to 18 lb/cu. ft. laminated to face of core.

END OF SECTION 09841